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ABSTRACT

This study compared the personality, cognitive style, and descriptive preferences of 79 preservice undergraduate education students who chose independent study instead of traditional teacher-directed study. Self esteem, field articulation, locus of control, cognitive style preference, and need for achievement tests were administered and descriptive data were collected on grade point average (GPA) and educational major. A discriminant analysis of test scores indicated that those electing independent study had a high need for achievement and an internal locus of control, and preferred learning via active experimentation. There was no evidence that ability--as measured by GPA or intelligence variables--or descriptive factors--as measured by gender, major, or prior knowledge--played roles in influencing the independent study decision. (EW)

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Independent Study:

Personality, Cognitive, and Descriptive Predictors

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Independent Study: Personality, Cognitive, and Descriptive Predictors

Abstract

This study compared personality, cognitive style, and descriptive preferences of 79 preservice undergraduate education students who chose independent study vs. traditional, teacher-directed study. Self-esteem, field-articulation, locus of control, cognitive style preference, and need for achievement tests were administered and descriptive data regarding GPA, gender, and educational major were collected. A discriminant analysis of test scores indicated that those electing independent study had a high need for achievement, had an internal locus of control, and preferred learning via active experimentation.

Introduction

Independent study instructional designs have been popular over the past two decades. Popular forms of self-paced designs include learning centers, programmed instruction, and the personalized system of instruction (PSI). PSI, or Keller Plan, courses provide self-paced learning through a structured set of learning experiences including quizzes, readings, media materials, assignments, and proctoring. Learners are responsible for scheduling their time and completing the exercises. Independent study systems assume that learners will complete instruction more efficiently and with greater satisfaction because they control the pace of instruction and select from a variety of instructional materials options designed to accommodate individual differences.

Courses that utilize PSI assume that self-paced instruction is good for everyone. Yet, many independent study programs have failed because course designers did not consider that personalities and learning styles of the learners were not consistent with independent study. The demands of self-regulation (pacing, sequencing, and practice of instructional activities) are a radical departure from traditional teacher controlled classes and cause significant anxiety in learners. The institution of a PSI course in instructional technology at the University of Nebraska at Lincoln has met with a high level of dissatisfaction. Although a few students seem to thrive in the program and most passed the course with "A's" and "B's", closing course evaluations indicate that most were frustrated and suffered a great deal of anxiety through the experience. A previous study by Jonassen (1985), initiated under similar circumstances, suggested that such problems may be due to learner characteristics. Jonassen investigated field articulation, cognitive style, self esteem, and achievement factors and found that students choosing the PSI method were field independent, had an internal locus of control, were less influenced by others, and employed more flexible reasoning

patterns.

It was observed in the University of Nebraska program that there seemed to be other factors correlated to the decision to follow PSI or traditional coursework, when given the choice. Most students electing the PSI option were female, secondary education students with what appeared to be above average ability. The intent of this study, then, was to examine the relationship among cognitive styles, personality characteristics, and descriptive characteristics of students who elected the PSI mode vs. those who chose the teacher-directed mode.

Method

One hundred thirty nine undergraduate students enrolled in an introductory instructional technology course at the University of Nebraska at Lincoln made up the sample for the study. The students were secondary or elementary education majors and predominantly female (over 60%). During the initial class session, students were administered a selection fo personality and cognitive style instruments listed below. Complete data were compiled for only 79 students, so this group comprised the sample.

Instrumentation

Rosenberg's Self-Esteem Scale (Rosenberg, 1965), is a self-report, 10-item, forced-choice scale designed to assess global self-esteem. The lower the score, the higher an individual rates him/herself.

Rotter's Internal-External Scale (Rotter, 1966) is a 29-item (six fillers), forced-choice test which assesses degree of internality of externality. Larger scores represent higher levels of externality.

Group Embedded Figures Test (Oltman, Raskin, and Witkin, 1971) is a 32-item test to measure field articulation. It was designed to test an individual's ability to locate a previously seen simple figure within a larger complex figure which has been so organized as to obscure or embed the sought-after simple figure. The larger the score, the more able the student is to disembed the figure and thus, the more field independent or analytical the student is.

Kolb Learning Style Inventory (Kolb, 1983) is a 12-item test which assesses a respondent's preferred style of learning. Four scores are generated to assess the degree to which each student prefers to learn via concrete experience (CE), abstract conceptualization (AC), active experimentation (AE), and reflective observation (RO).

Conceptual Styles Inventory (Kagen, Moss, and Siegel, 1963) is a 30-item, graphic test to measure a respondent's predilection to think in a relational or analytical manner. Only Part 1 (15 items) was used.

Need for Achievement Scale (Samuels, 1979) is a 24-item forced choice test to measure need for achievement. Higher scores indicate a greater motive to achieve.

Descriptive Information was collected on individual data sheets. Information collected included GPA, gender, and major.

A *Course Pretest* was administered. The pretest scores were

used to determine whether prior knowledge affected the decision to choose PSI or classroom instruction.

PSI Registration Form was used to record each students reason for selecting for the PSI method of study.

Procedure

Following testing, the requirements of the course were explained. Students were given the choice of completing the course requirements by PSI or traditional classroom, teacher-paced instruction. The former consisted of using manuals, quizzes, and media materials for each topic in a specified sequence. The latter method consisted of regularly scheduled class sessions consisting of lecture, demonstration, discussion, and viewing and listening of audiovisual materials. Course requirements and standards were identical for each group. Following the choice of study formats, each group was provided with instructions specific to their mode of study and dismissed.

Of the original 139, 79 (82%) finished all materials and the course. Of the 79, 17 (22%) chose and completed the course in the independent study format. Students' reasons for choosing one format over the other were not considered, only their desire to participate.

Results

A stepwise discriminant analysis of 14 variables was conducted, using Wilk's Lamda and a $F > 1.0$ as entry criterion. A total of 68.35% of the grouped cases were correctly classified by the analysis. Three significant discriminant variables emerged (Table 1). The most significant discriminator was need for achievement. Independent study students had a higher achievement motive. Closely related was the next most significant variable, locus of control, where independent study subjects were more internal and preferred to take more personal control of their own learning. The third significant variable was the active experimentation (AE) dimension of Kolb's learning styles, where the learning strengths of the independent study students lay in their desire to do things, to carry out plans and experiments, to apply new ideas.

Table 1. Stepwise Discrimination Analysis Results

Variable	F	Cumulative Wilk's Lamda
(1) Need for achievement	11.190	.87307
(2) Locus of control	3.980	.95085
(3) Active experimentation	2.972	.96284

Discussion

The analysis supports the contention of Szabo and Feldhusen (1970) that personality variables are useful as predictors of independent study preference. These results and those from Jonassen's (1985) study have identified several basic characteristics that may serve as discriminators between students choosing independent study and those choosing a teacher-directed class. In both studies, locus of control was found to be a significant discriminator. The independent study students possess a high internal locus of control, that is, they choose to be responsible for their own actions and attribute successes and failures to their own ability and effort. Both studies also show that these students have a higher need for achievement, that is, independent study students have a high motive to succeed and work diligently to attain their goals. The "locus of control" and "need for achievement" discriminators correlate closely with Jonassen's (1985) addition findings that independent study students were more self-confident and had a lower need for affiliation.

There was no evidence to suggest that ability or descriptive factors played roles in influencing the independent study decision. Neither GPA nor other intelligence variables (Jonassen, 1985) were significant descriptors. Nor were gender, major, and prior knowledge correlated with the decision.

So, a clear conception of students who select independent study has been confirmed. These students are goal-oriented, more purposive in achieving their goals, and less influenced by peer values and motives. These students are self-reflective, independent, and self-assured. They are willing to take moderate risks, especially if the risks permit them to maintain active control of their learning activities. They believe in their own ability. These interpretations are also supported by the independent study students' own statements, for 59% (12 of 17) of those who elected PSI state that they wished to take more responsibility and have more control over their won learning. (The other five students stated that a scheduling conflict was the primary reason for opting for PSI.)

The implications of these findings are that independent study, within a standard PSI course structure, is a preferred mode of instruction for only a minority of students who are strongly motivated and self-assured. To force other students into a PSI course causes increased anxiety and increased levels of anxiety can impede learning. The inference is clear. The best way to individualize instruction may not be to force all students into a classically structured PSI course. To do so is to ignore their their personality and learning styles. Different kinds of support structures need to be developed and tested for those who have lower achievement and internal control levels. Additional research should also examine the effects of prior experience with independent study and training in using independent study programs. Individualization that does not accommodate to the personality needs of the learners is not truly individualized.

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